

CLAIMS

What is claimed is:

1. A locating and clamping assembly comprising:
 - a body defining an internal cavity and an opening from said cavity to the exterior
 - 5 of said body;
 - a locating pin disposed in said cavity and extending along an axis **A** out of said opening to a distal end;
 - an actuator for moving said locating pin rectilinearly along said axis **A** into and out of said opening;
 - 10 at least one finger supported by said locating pin adjacent said distal end for movement radially into and out of said locating pin transversely to said axis **A** of said locating pin;
 - said assembly characterized by a mechanism for rotating in response to said rectilinear movement of said locating pin for moving said finger radially.
- 15 2. An assembly as set forth in claim 1 wherein said mechanism includes a central post disposed between said actuator at a first end and said finger at a second end for rotational movement in response to said rectilinear movement and a motion converter for converting rotational movement of said central post to radial movement of said finger.
- 20 3. An assembly as set forth in claim 2 wherein said finger includes a slot extending across the radial path of movement of said finger and said converter comprises said slot and a dowel extending axially from said second end of said central post and into said slot, said dowel offset from said axis **A** for radially moving said finger in response to rotational movement of said central post.

4. An assembly as set forth in claim 2 further comprising a cam and a cam follower interconnecting said central post and said body for rotating said central post in response to said rectilinear movement of said locating pin.

5. An assembly as set forth in claim 4 wherein said cam is defined by a cam slot and said cam follower comprises a cam pin slidably disposed in said cam slot.

6. An assembly as set forth in claim 5 wherein said cam follower is mounted to said body and said cam slot is defined in said central post with said cam pin extending into said cam slot for guiding said central post as said central post moves rectilinearly.

7. An assembly as set forth in claim 6 wherein said cam slot is defined in a first portion beginning proximal to said first end of said central post and extending around said central post toward said second end to provide said rotational movement of said central post and move said finger radially as said cam slot moves along said cam pin.

8. An assembly as set forth in claim 7 wherein said cam slot is further defined in a second portion continuing from said first portion distal to said first end and extending axially straight toward said second end to allow said central post to travel rectilinearly with said finger extended radially from said locating pin.

9. An assembly as set forth in claim 8 further including a second cam slot and a second cam pin slidably disposed in said second cam slot with said second pin being disposed on the opposite side of said axis A from said first mentioned cam pin.

10. An assembly as set forth in claim 8 wherein said central post includes a top portion and a bottom portion having a greater diameter than said top portion to present a ledge for abutting said locating pin and moving said central post rectilinearly as said locating pin moves.

11. An assembly as set forth in claim 1 wherein said locating pin includes a cylindrical portion adjacent said body and a bullet-shaped portion opposite said body for centering a work piece on said locating pin.

12. An assembly as set forth in claim 11 wherein said finger is supported by
5 said cylindrical portion proximal to said bullet-shaped portion for spacing said finger from said body.

13. An assembly as set forth in claim 12 wherein said finger defines a minimal gap with said locating pin to prevent foreign materials from entering into said locating pin.

10 14. An assembly as set forth in claim 1 further including a second finger supported by said locating pin adjacent said distal end.

15. An assembly as set forth in claim 1 further including an annular ring disposed about said locating pin and mounted to said body for abutting a surface of the work piece on the locating pin.

15 16. An assembly as set forth in claim 1 further including a switch mounted to said body for detecting a position of the locating pin.

17. An assembly as set forth in claim 16 further including an adjustment mechanism for calibrating said switch.

18. An assembly as set forth in claim 1 wherein said locating pin is comprised
20 of a non-magnetic stainless steel.

19. An assembly as set forth in claim 16 further including a switch inside of said actuator for detecting a position of the locating pin.

20. An assembly as set forth in claim 1 wherein said actuator is powered by

at least one of manual, electrical, pneumatic, and hydraulic power.

21. An assembly as set forth in claim 20 wherein said actuator includes an internal spring that, upon failure of power, forces said finger to remain extended in a clamped position against the work piece.

5 22. An assembly as set forth in claim 11 wherein said locating pin includes a rectangular shape with an angled portion opposite said body for centering and guiding the work piece along said locating pin.

23. An assembly as set forth in claim 22 wherein said locating pin includes machined flats on each side for engaging workpiece slots on the work piece.

10 24. An assembly as set forth in claim 23 wherein said locating pin includes side locators mounted degrees from said fingers to said locating pin.

25. An assembly as set forth in claim 15 further including said annular ring to be of different diameters and lengths for abutting the surface of the work piece on the locating pin.

15 26. An assembly as set forth in claim 15 further including said annular ring comprising both hard and soft materials to prevent damage to the work piece.